



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/038,230	03/11/1998	TSUGUO KOYANAGI	1217-980347	8053

7590

07/17/2002

RUSSELL D ORKIN  
700 KOPPERS BUILDING  
436 SEVENTH AVENUE  
PITTSBURGH, PA 152191818

EXAMINER

METZMAIER, DANIEL S

ART UNIT	PAPER NUMBER
----------	--------------

1712

30

DATE MAILED: 07/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/038,230

Applicant(s)

KOYANAGI ET AL.

Examiner

Daniel S. Metzmaier

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

Claims 1 and 5 are pending. The request for a one month extension of time filed April 25, 2002 has been entered as Paper No. 27. The Request for Continued Examination filed April 25, 2002 has been entered as Paper No. 28. Claim 1 has been amended and new claim 5 presented in the amendment filed April 25, 2002, Paper No. 29.

The amendment filed April 25, 2002, Paper No. 29, presented the new claim as claim number 2. Said claim 2 has been renumbered as claim 5 in accordance with 37 CFR 1.126. Applicants should reference the claim as renumbered for all future correspondence.

The examiner notes the telephone conversation of April 16, 2002 referred to at page 2 of the amendment was of a general nature regarding office practice and did not warrant summary.

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 25, 2002, Paper No. 29, has been entered.

### ***Claim interpretation***

Art Unit: 1712

2. Applicant's claim is directed to inorganic oxide sols comprising a modified composite oxide particulates. Said sols have a dielectric constant of 10 to 85, a particle size range of 11 to 30 nanometers, and a specific classes of organosilane compounds. Said compounds are further limited to exhibiting a molecular polarizability of  $2 \times 10^{-40}$  to  $850 \times 10^{-40} \text{ C}^2 \text{ m}^2 \text{ J}^{-1}$ . Said sols have been limited to a specified silica to other inorganic oxide ratio of 3 to 500. Said sols have been limited to being stable in the presence of species selected from the group consisting of ionic components, salts, and surfactants.

The term composite oxide particulate is not specifically defined in the instant specification and takes the plain meaning in the art, which includes an oxide particulate comprising two or more metal oxides in the oxide particulate.

It is noted, the claims do not require the species selected from the group consisting of ionic components, salts, and surfactants; but that they are stable in the presence thereof. The amount of the species selected from the group consisting of ionic components, salts, and surfactants have not been defined in the claims. A sol having a pH other than neutral is considered to have ionic components. The degree of stability has not been defined in the claims.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1712

4. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Minnesota Mining and Manufacturing Company (3M), WO 97/00995. 3M (pages 25 and 26) disclose coupling agent treated silica sols and denote the sol P-4 as surface treated NALCOAG 1056, which is colloidal silica core with an  $\text{Al}_2\text{O}_3$  shell (~4%  $\text{Al}_2\text{O}_3$ ) suspension having a mean particle size of 20 nm and 30 % solids content in water having a pH of 4.2. Said NALCOAG 1056 has been treated with mercaptopropyltrimethoxysilane. The sols are characterized as homogeneous and the claimed properties of the sol compositions would have been expected to have been inherent to the compositions since the compositions otherwise consist of the same components. A composition and all of its properties are generally inseparable. *In re Papsech*, 315 F2d. 381, 137 USPQ 43, (CCPA 1963).

5. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Bunger et al., US 3,689,300. Bunger et al (example 1) discloses methacryloxypropyltrimethoxysilane treated silica sols, which are colloidal silica (26%  $\text{SiO}_2$ ) modified with an  $\text{Al}_2\text{O}_3$  shell (~4%  $\text{Al}_2\text{O}_3$ ) suspension having a mean particle size of 16 nm and 30 % solids content in water having a pH of 4.7. The sols are characterized as homogeneous and the claimed properties of the sol compositions would have been expected to have been inherent to the compositions since the compositions otherwise consist of the same components. A composition and all of its properties are generally inseparable. *In re Papsech, supra*.

Art Unit: 1712

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Enomoto et al., US 5,935,700, in view of Yoneda et al, US 5,316,714. Enomoto et al (abstract, column 3, et seq; examples, and claims) disclose composite particles of silica and at least one other inorganic oxide other than silica. Suitable particles are taught (columns 3 to 4, lines 62 to 10) to range in size from 10 nm to 2 microns. Said range includes applicants claimed range of 10 to 30 nm. Said range is defined only by applicants' examples and applicants teach (page 6, lines 20-23) the size of the composite particulates is not particularly limited as long as the sol is stable.

Art Unit: 1712

Enomoto et al (column 7, lines 26-47) teaches the composite oxides may be employed as an organosol in alcohols, glycols and ketones which read on the required dielectric constant claimed. Enomoto et al further teaches the particles may be surface modified by silane coupling agents. Enomoto et al (examples ; particularly example 6) teaches the silica to other oxide ratio within the range of 3 to 500.

Enomoto et al differs from the claims in the particular silane coupling agent treating said composition.

Yoneda et al is cited on the Enomoto et al reference. Yoneda et al teaches glycol dispersions for imparting slipperiness to polyester films. Yoneda et al (column 7, lines 15 et seq) teaches coupling agents for treating the particulate sols including those exhibiting a molecular polarizability claimed. Please contrast the Yoneda et al species with those disclosed at page 22, table 1 of the specification.

These references are combinable because they teach providing slipperiness to polymer films. Said references are directed to related art as evidenced by the citation of Yoneda et al on the Enomoto et al patent. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the coupling agents taught in the Yoneda et al reference as obvious coupling agents conventional in the art and broadly taught in the Enomoto et al reference. Furthermore, the skilled artisan would have been motivated to employ the aminosilane as an exemplified (table 2c) species for the advantage of providing slipperiness.

Art Unit: 1712

Applicants' comparative data does not show criticality for the use different silanes having the molecular polarizability in glycol suspensions. Furthermore, applicants state the particle size is critical to the extent a stable sol is formed.

One of ordinary skilled in the art at the time of applicants invention to employ would have reasonably expected the formation of glycol sols surface modified with the silanes of Yoneda et al would have produced stable sols upon reading the Enomoto et al reference in view of the Yoneda et al reference.

***Advisory regarding papers filed***

1. The papers filed on **April 25, 2002** (certificate of mailing dated **April 18, 2002**) have not been made part of the permanent records of the United States Patent and Trademark Office (Office) for this application (37 CFR 1.52(a)) because of damage from the United States Postal Service irradiation process. The above-identified papers, however, were not so damaged as to preclude the USPTO from making a legible copy of such papers. Therefore, the Office has made a copy of these papers, substituted them for the originals in the file, and stamped that copy:

**COPY OF PAPERS  
ORIGINALLY FILED**

---

If applicant wants to review the accuracy of the Office's copy of such papers, applicant may either inspect the application (37 CFR 1.14(d)) or may request a copy of the Office's records of such papers (*i.e.*, a copy of the copy made by the Office) from the Office of Public Records for the fee specified in 37 CFR 1.19(b)(4). Please do **not** call the Technology Center's Customer Service Center to inquiry about the completeness or accuracy of Office's copy of the above-identified papers, as the Technology Center's Customer Service Center will **not** be able to provide this service.

If applicant does not consider the Office's copy of such papers to be accurate, applicant must provide a copy of the above-identified papers (except for any U.S. or foreign patent documents submitted with the above-identified papers) with a statement that such copy is a complete and accurate copy of the originally submitted documents. If applicant provides such a copy of the above-identified papers and statement within **THREE MONTHS** of the mail date of this Office action, the Office will add the original



Art Unit: 1712

mailroom date and use the copy provided by applicant as the permanent Office record of the above-identified papers in place of the copy made by the Office. Otherwise, the Office's copy will be used as the permanent Office record of the above-identified papers (i.e., the Office will use the copy of the above-identified papers made by the Office for examination and all other purposes). This three-month period is not extendable.

### ***Response to Arguments***

9. Applicant's arguments filed April 25, 2002 have been fully considered but they are not persuasive.

10. Applicant's arguments with respect to claims 1 and 5 have been considered but are moot in view of the new ground(s) of rejection.

11. Applicants (page 3) assert the Yoneda et al and Enomoto et al reference do not teach the claimed sols that are stable in the presence of ionic components, salts or surfactants. This has not been deemed persuasive since the Yoneda et al reference teaches the use of a base as a processing component and said bases read on the claimed ionic components. Furthermore, Enomoto et al teaches the use of surface modifying agents including coupling agents, and surface active agents and salts. Since these agents are taught as compatibility improvers, the skilled artisan would expect agents with like groups would improve stability rather than have an adverse effect on stability.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (703) 308-0451. The examiner can normally be reached on 9:00 AM to 5:30 PM.

Art Unit: 1712

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on (703) 308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Daniel S. Metzmaier  
Primary Examiner  
Art Unit 1712

DSM  
July 10, 2002